

AUTOMATIC MATERIAL ORDERING DEVICE

[自動資材発注装置]

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(54)Name of Invention: Automatic Material Ordering Device

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## Details

## 1. Name of Invention:

Automatic Material Ordering Device

## 2. Claims

(1)

This device is in reference to a facsimile which is used to transmit and receive signals, by a telecommunication line. This invention has the means to detect the quantity of document paper.

If the amount of paper is insufficient a signaling will occur. A supplier is registered beforehand so when a signal is received by the facsimile, on the receiving (user) side a communication line is used to transmit a message. The message is then transmitted to the designated receiver (supplier).

The above Automatic Material Ordering Device has the distinct features of being able to automatically resupply the facsimile with document paper by contacting the supplier.

3. Detailed explanation of invention  
(Field of Use in Industry)

This invention uses telecommunication lines such as a phone line to transmit and receive signals by way of a facsimile device

## (Background of Invention)

It is well known that facsimiles are devices that use existing telephone lines of communication to receive and send material of residual quality.

In these facsimile devices, the information is reproduced on paper which is located inside the facsimile device. Therefore, this information is recorded on paper whenever a message is received. It is necessary for the user to resupply the device with paper before/when it runs out.

A red marking is located towards the end of the roll of paper so the user will know when to resupply the paper. This will let the user know when to order paper and or service the facsimile. In reference to the previously mentioned facsimile device, if all of the document paper, down to the marking located at the end of the roll, is consumed, paper will have to be ordered when it is out of paper. And since there are many types of facsimile devices it is possible to order the wrong size and kind of document paper by mistake. Since the marker is only of a certain length, there are times when the facsimile device runs out of paper and due to the time it takes to resupply the facsimile. This creates the problem of not being able to receive information or messages

(Ways to solve the problem)

In order to solve the previously listed problem, this invention addresses the following:

Means to detect the remaining amount of material (paper).

Detection means by signaling when the paper is below a predetermined level.

Have Supplier registered beforehand and have a material supply signal sent to the suppliers' receiving facsimile.

Do this by way of a line of communication and have this as a distinct feature of this invention.

(Action)

In reference to composition, as can be seen in Figure 1, detector (31) detects the remaining amount of material. The remaining material detector is set so if detection is made, signal "a" is sent from detector number (32).

Based on detection signal "a" signal (33) is then connected to the receiving facsimile (40). This facsimile is registered beforehand. When connected to this line, the material supply signal "c" sends a signal to the supplier's facsimile (40) In continuation, an example of the automatic material supply device invention as applied to the previous mentioned facsimile device, the following is in reference to Figure 1 and will be explained in detail.

(Working Examples)

Figure 1 is an example of the Automatic Material Supply Device invention applied to the user's side

(facsimile side) and the material supplier's side as depicted in the system diagram.

As can be seen in Figure 1, it consists of the Automatic Material Supply Device (30) and Detector (31) which detects the remaining material Based on the detection results, detection signal "a" is sent to Signal Detection Device (32) and Transmission Device (33) and to the User Information/Contact Device (34).

This type of Automatic Material Ordering Device (30) provided to the user's side (1) is illustrated and will be explained in reference to the flow chart shown in Figure 2.

First, in Detection Device (31), materials such as an insufficient amount of paper is detected (step S1) the result of that signal detection is supplied to Detection Device (32). Detection Device (32) then decides whether or not the predetermined amount of paper is insufficient or not (step S2). If the remaining amount of material is less than the predetermined amount detection signal "a" is supplied to Transmitter Device (33) and Reporting Device (34) respectively (step S3, S4). The result of this is that Reporting Device (34) is set into motion and material consumption is reported to the user While Transmitter Device (33) is connected to the predetermined supplier's facsimile.

Once connected, the user's registration number "b" and or material supply signal "c" sends a report to the material supplier's facsimile (40) In one way, like the material supplier's facsimile (40) shown in Diagram 1, if the registration number "b" and the material supply signal "c" that are sent from the user's facsimile are received by the reception device(41) the signal device (42) receives the signal content. Namely the registration numbers and material signal are each detected.

In reference to the user's data, supplied by Data Base (44), Search Device (43) receives the registration number "b" and searches for the type of material and means of distribution.

Based on the search results, contact device (45) contacts and finds ways to supply prescribed materials to the user.

Figure 3 is an outline showing how the invention of the Automatic Material Supply Device can work suitably for the facsimile.

The facsimile (1) is commonly known for its rectangular shape (2). Inside the manuscript's Optical Reading Device and (10) and Recording

Device (20), which records the received image data on paper are located inside.

The image taken according to the Optical Reading Device (10) is processed via the same device that deals with incoming image data.

On the upper part of the facsimile body (2) is the Manuscript Tray (3) it can be seen as the attached portion sticking out and up towards the left of the drawing. The manuscript (all materials hereafter will be referred to as manuscripts) is placed on the Manuscript Tray (3) and conveyed to the Optics Reading Device (10). The manuscript enters the main body of the facsimile by way of the manuscript slot. Conveyer Roller (4) sends the manuscript down to the Exiting Rollers (5, 6).

Between these rollers (5, 6) the type of paper and manuscript image reading is processed. To do this, a fluorescent light (11) is set between the Conveying Roller (4) and the Exiting Rollers (5, 6). The light is used to shine on the surface of the manuscript. By doing this, the obtained optical image information is dispatched to a pair of mirrors 12, 13 located in lower part of the facsimile's main body the light is then guided to the image reading element by way of lens (14).

The image reading element (15) changes the optical image information from an electrical signal to an image signal. An image signal diagram is not presented but the image signal is processed and sent out via telecommunication line. Image Reading Element (15) can use line sensors comprising electric charge transfer elements such as CCD (17) shows an installation board of CCD (15).

The manuscript is sent down at a predetermined speed. , in an actual example image information is read and then changed into an image signal. The manuscript is sent out at a predetermined speed and held between a pair of exiting rollers 5, 6. In this example the manuscript exits the facsimile from the lower side (not pictured) into a reception tray. In addition, although not shown, on the upper front side of the main body (2), there is an operation panel side, and various operation keys and indication departments are present. Continuing, Recording Device (20) will be explained.

Recording Device (20) reproduces the received signal by taking the information and creating a visible image on paper.

Recording Device (20) is located on the upper back side of the Main Body (2)

For this reason roll paper is located in the center of the facsimile (21). This paper passes on to Roller (22). On the upper side on this roller a Recording Element (23) is attached in order to print. From Recording Element (23) a line head heat sensor can be used.

Therefore, the Heat Head Sensor (23) records the received image information on the Roll Paper (21) that is transported to the top surface of roller (22) The image information that is recorded on paper (21) is transported out to a predetermined length and automatically cut by cutting device (24)

This automatic cutting device is not illustrated but the blade and the device can be adjusted for cutting.

The paper that is automatically cut is then sent to the Receiving Tray (21) that is located on the back side of the Main Body (2)

In reference to the previously mentioned facsimile (1), as in the drawing, recording element (23) is supported and attached to Movable Shaft (26)

The previously mentioned Detection Device (31) is supported by the Support Arm (27)

An example of Detection Device (31) can be seen in Figures 4 and 5.

Figure 4 is an example of Photo Sensor (31a) of the Detection Device 31 transmitting and receiving light.

As can be seen in Figure 4A, when the Recording Paper (21) is over the predetermined amount, the light sent from the Photo Sensor (31a) is reflected off the Recording Paper (21) and is received by the Photo Sensor (31a).

If the amount of Recording Paper (21) is less than the determined amount the light (p) from the Photo Sensor (31a) does not make contact with the Recording Paper (21) therefore the light (p) is not received by the Photo Sensor (31a).

Furthermore, the Photo Sensor (31a) can detect how much paper is left by the reflected light.

As can be seen in Figure 4B, when the paper is over the designated amount, the Micro Switch (31b) is in the on position and the remaining amount of paper can be detected.

The previously mentioned detection device is not only limited to this action and the recording material mentioned in this example is not limited to just this one type of paper. Any other suitable material for consumption is acceptable.

The detection device does not have to be in the same exact location to get the same effect. Any

other position where detection can be made is acceptable.

Figure 5 shows the operation of the micro switch 31b of the detection device 31.

As shown in Figure 5 A, when the recording paper 21 is above the level of the micro sensor 31b the sensor is in the on position (or switches to the on position), and the level of paper is detected.

As shown in Figure 5 B, when the recording paper 21 is below the level of the micro switch 31b is in the on position (or switches to the on position) and signals for resupply.

The above mentioned detection device 31 does not impede the action of the machine.

This working example explains the functioning of one method of the invention, and does not exclude other methods. For example, other detection devices are also acceptable.

So long as the transmission device doesn't interfere with the operation of the main machine, other transmission devices are also acceptable.

#### (Effects of this Invention)

The special features of this invention are the ability to check the remaining amount of consumable material by way of a detection device.

When an insufficient amount of paper is detected an alarm signal can be sent by way of an alarm signal device.

Based on signal detection, a prerecorded line of communication can be connected to and a resupply signal can be sent to a supplier/distributor.

Furthermore, the user doesn't have to request supplies and can avoid problems related to delays

in ordering, and can prevent errors in relation to the types of materials ordered.

This automatic material ordering device invention is acceptable and suitable for facsimiles

#### 4. Simple explanation of the diagrams

Figure 1 shows composition of this invention (Automatic Material Ordering Device) when it is applied to a facsimile.

Figure 2 shows the flowchart in relation to the Automatic Material Ordering Device.

Figure 3 shows a summary of a suitable application of this invention in a facsimile.

Figures 4 and 5 show an example of this Inventions detection device.

- 1 Facsimile
- 21 Recording Paper
- 30 Automatic Material Ordering Devices
- 31 Detection Devices
- 32 Detection Signal Outbreak Devices
- A Detection Signal
- B User Registration Number
- C Material Supply Signal

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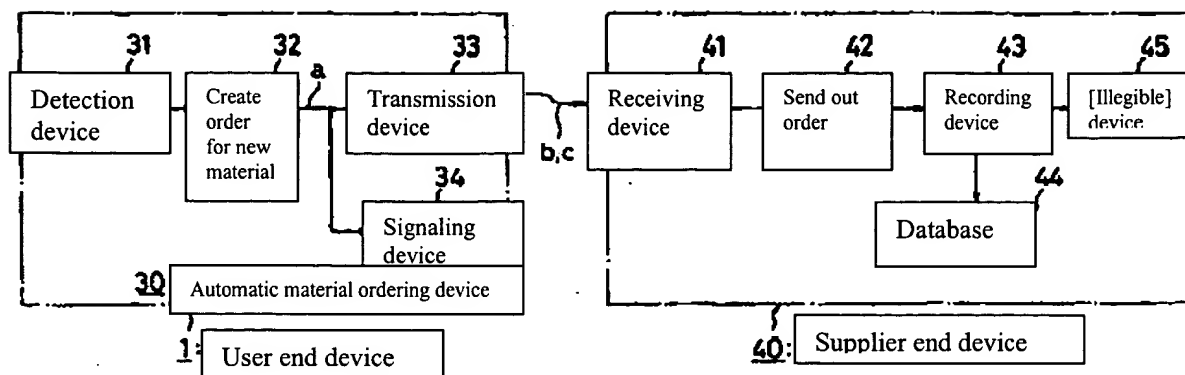


Figure 1

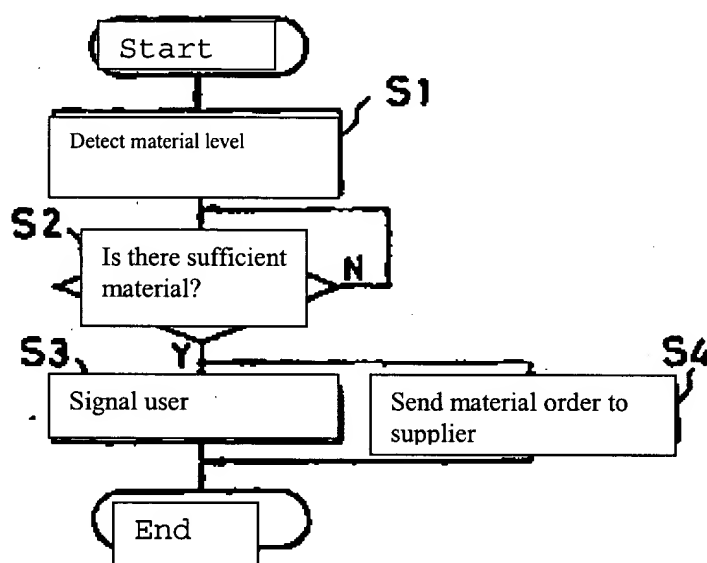
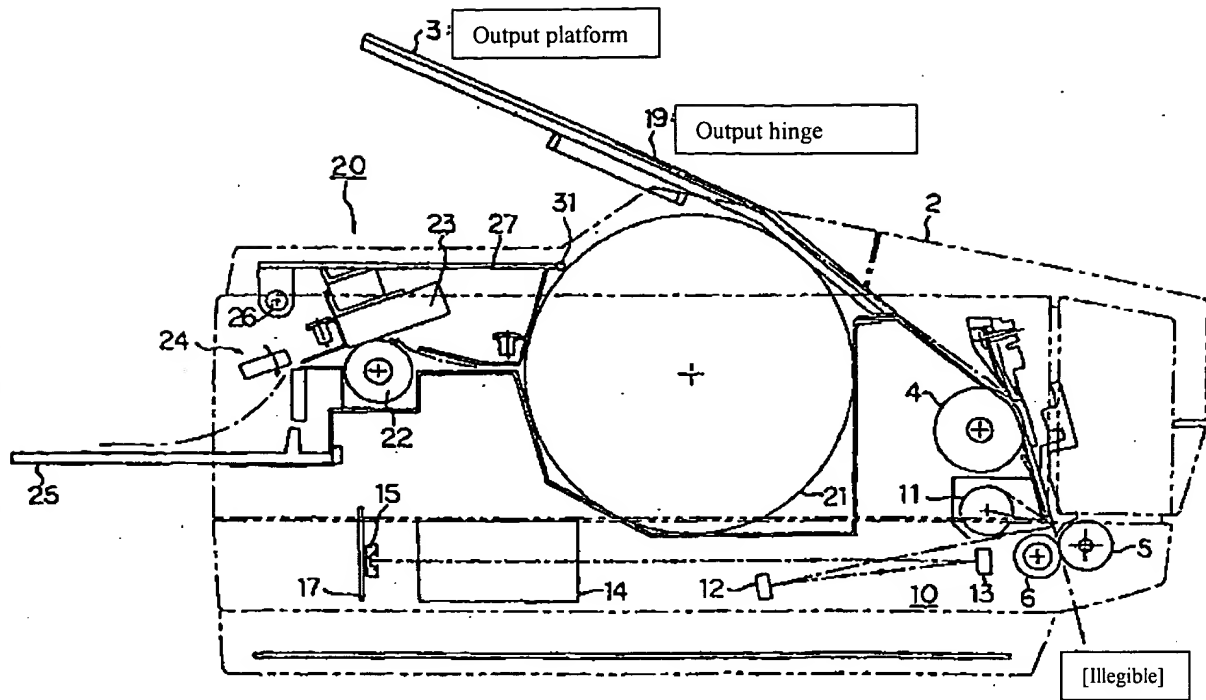


Figure 2



1: Facsimile Device

Figure 3

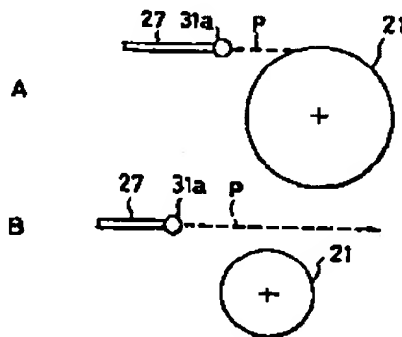


Figure 4

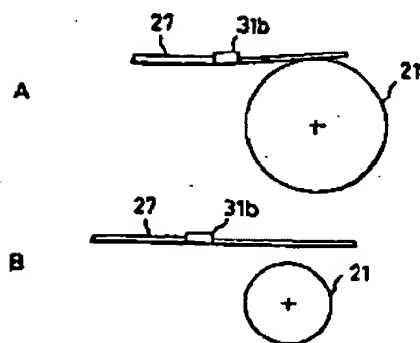




Figure 5